
SCHOOL BUS CHARGING INFRASTRUCTURE: INSTALLATION CHECKLIST

Energy Commission staff, with collaboration from the presenters at the November 2018 Infrastructure Workshop, developed this checklist to help school districts, county offices of education, and joint power authorities prepare to install electric school bus charging infrastructure. These are not program requirements, nor part of the Scope of Work of grants under GFO-17-607. This checklist is intended to assist electric school bus recipients with planning by providing steps to consider for completing a charging infrastructure project.

FIRST STEP!

- ☐ Assemble the team! Team representatives should include:
 - ☐ Transportation
 - ☐ Maintenance
 - ☐ Electrical
 - ☐ Campus
 - ☐ Accounting/Finance
 - ☐ Agreement Management
 - ☐ Long-Term Planning
- ☐ Contact your utility and begin the process of ensuring your site has enough energy for charging.

EARLY PLANNING AND SITE ASSESSMENT

- ☐ Do you need permission to install charging infrastructure? From who? What is the process?
- ☐ Where will you park the electric school buses?
 - ☐ Is the location flexible?
- ☐ What is the distance from the bus to your source of electricity? What is the distance between the AC power and the dispenser (device delivering power to the bus)?
Suggestion: Take a Google Earth snap shot to visualize.
- ☐ What electricity is already available at or near the electric school bus parking location?
 - ☐ Is this adequate? Do you need an upgrade?
 - ☐ Will upgrades include solar or storage?
- ☐ What type of electric buses are being delivered? How many?
 - ☐ Do you plan to purchase additional electric buses in the next 5 years? What size?

- ☐ If purchasing additional electric buses in the future, does it make sense to conduct make-ready work for the build out of expected future infrastructure installation? If so, contact your utility.
- ☐ What does the original equipment manufacturer (OEM) of the bus recommend for charging infrastructure: level 2, direct current fast charging (DCFC), vehicle-to-grid, other? The Energy Commission requires that the bus have the ability to charge with Level 2 J1772 and type 1, combined charging system (CCS) EV plugs. Contact the OEM to determine the infrastructure that fits and works best with your bus.

Answers to the additional questions below may help further in selection and planning.

- ☐ What time of the day will most of the charging take place? Have you considered time-of-day rates for electricity?
- ☐ What is the budget for electricity? Have you considered charging vehicles in off-peak electricity hours to save money on electricity?
- ☐ When will the equipment be required, and what is the lead time? Be sure to schedule infrastructure installation so that it is complete before delivery of the bus.
- ☐ How many chargers do you need? For many this will just be one level 2 charger for each bus, but if a fleet is going to have 5 buses or more a fast charger could also be useful.
- ☐ Are there any preferred or hard schedule requirements for construction? Vehicle operation start date?

ESTABLISH EARLY CONTACTS

- ☐ Utility provider: Start contact now! Utilities may provide assistance in understanding existing electricity options, possible upgrades needed (if any), and possible matching funding.
 - ☐ Begin the application process to ensure electricity for the charging infrastructure with the utility
 - ☐ Secure Easement and Program Commitment
 - ☐ Conduct site visit with utility representatives
 - ☐ Complete Engineering Design
 - ☐ Receive design approval
- ☐ Equipment Provider(s): Find out what your power usage and space requirements will be.
 - ☐ Start any no cost steps towards selecting equipment providers, and beginning design of installation.
 - ☐ Ask questions, like:
 - ☐ What is the central management system or application protocol to be used for managing chargers (i.e. Open Charge Point Protocol (OCPP) 1.6)?
 - ☐ Is additional expertise needed? For example, an electrician?
- ☐ Energy Commission: Work with the Commission to complete grant agreement documents early, such as budget, scope of work, project schedule, California

Environmental Quality Act (CEQA), and Localized Health Impacts Information Form.

REMEMBER: Wait to sign contracts, and incur costs for upgrades until Energy Commission grant agreements are fully executed by the Energy Commission.

STEPS AFTER ENERGY COMMISSION FUNDING IS APPROVED

- ☐ With Utilities:
 - ☐ Finalize Engineering Design
 - ☐ Complete permitting
 - ☐ Conduct Hazardous Materials Testing
 - ☐ Complete construction
 - ☐ Energization (getting power connected to the school bus charging infrastructure)
- ☐ With Equipment Providers:
 - ☐ Incorporate details into design
 - ☐ Approve installation
- ☐ With the Energy Commission:
 - ☐ Invoice for costs
 - ☐ Report Progress
 - ☐ Contact for help as needed